

REMARKS

Applicant hereby responds to the Office Action mailed July 13, 2006 in relation to the above-identified patent application. In that Office Action, the Examiner rejected Claims 1-24 under 35 U.S.C. §102(b) as being anticipated by the Takemura et al. reference (EP 1,032,037). Applicant respectfully submits that the pending claims of the present application, as originally filed, are not anticipated by the cited Takemura et al. reference for the reasons set forth below.

Additionally, by this response, Applicant has added new independent Claim 25 into prosecution. Applicant respectfully submits that new Claim 25 is also not anticipated or rendered obvious by the cited Takemura et al. reference.

Independent Claim 1 is not Anticipated by the Takemura et al. Reference

As originally filed, independent Claim 1 describes the semiconductor package of the present invention as comprising “***...at least one tie bar attached to and extending from one of the corners of the die paddle, the tie bar having opposed first and second surfaces and at least one aperture disposed therein and extending between the first and second surfaces thereof...***” Applicant respectfully submits that at least these features of independent Claim 1 of the present application are not taught or suggested by the cited Takemura et al. reference.

In Figures 1(a) and 1(b) highlighted by the Examiner in the subject Office Action, the Takemura et al. reference discloses a QFN package comprising a plurality of signal leads 1 which extend about a die pad 2 which has a semiconductor chip 4 mounted thereon. Protruding from each of the four corners defined by the generally quadrangular die pad 2 is four (4) support leads 3 or tie bars. As noted from Figure 1(a) of the Takemura et al. reference which represents a cross-section taken along line Ia-Ia of Figure 1(b), each of the four support leads 3 or tie bars is integrally connected to the die pad 2 and includes a spaced pair of bent portions 13, 14 (see Takemura et al. reference., column 11, lines 6-7). Applicant respectfully submits that the Takemura et al. reference is completely devoid of any teaching

or suggestion whatsoever regarding any of the support leads 3 or tie bars including any “aperture” disposed therein.

In the subject Office Action, the Examiner correlates the tie bar aperture feature of Claim 1 to the “area between 2b and 9” shown in Figures 1(a) and 1(b) of the Takemura et al. reference (see Office Action, page 2, paragraph 2). Applicant respectfully submits that the Examiner has erroneously characterized such “area” as an aperture within the tie bars 3. In this regard, when considering the orientation of the line Ia-Ia along which the cross-section in Figure 1(a) of the Takemura et al. reference is taken, the “area between 2b and 9” is nothing more than the gap or space which is defined between peripheral portion 2b of the die pad 2 and the signal leads 1, each such signal lead 1 being described in the Takemura et al. reference as defining an external electrode 9 for electrical connection to an underlying motherboard.

Thus, based on the foregoing, Applicant respectfully submits that independent Claim 1 of the present application is not anticipated by the Takemura et al. reference, and is in condition for allowance. Additionally, Applicant respectfully submits that Claims 2-15 are also in condition for allowance as being dependent upon an allowable base claim.

Independent Claim 16 is not Anticipated by the Takemura et al. Reference

As originally filed, independent Claim 16 describes the semiconductor package of the present invention as comprising “***...a quadrangular package body having four corners and a recess formed within each of the corners thereof, the package body at least partially covering the die paddle, the leads, the tie bars and the semiconductor die such that...the outer end surface of each of the tie bars is exposed in a respective one of the recesses of the package body.***” Applicant respectfully submits that at least these features of independent Claim 16 of the present application are not taught or suggested by the cited Takemura et al. reference.

In the subject Office Action, the Examiner discusses the purported anticipation of independent Claim 16 by the Takemura et al. reference on the first three lines of page 3. However, Applicant notes that this particular passage of the Office Action fails to make any mention of those features of Claim 16 highlighted above, and in particular the feature of a recess formed within each of the corners of the package body.

In the Takemura et al. reference, Figure 2 provides a bottom plan view of the QFN package shown in cross-section in Figure 1(a) and also shown in Figure 1(b) highlighted by the Examiner in relation to the rejection of Claim 16. As is readily apparent from Figure 2 of the Takemura et al. reference, a resin encapsulant 6 or package body of the QFN package is completely devoid of recesses formed within each of the corners thereof. Though each of the four corners of the resin encapsulant 6 shown in Figure 2 is beveled or chamfered, Applicant respectfully submits that there is no “recess” formed therein in the context of Claim 16.

Even assuming, for the sake of argument, that the chamfered corners of the resin encapsulant 6 in Figure 2 of the Takemura et al. reference are properly construed as being recesses (which Applicant disputes), Applicant respectfully submits that the Takemura et al. reference still fails to satisfy at least the features of Claim 17 of the present application which describes each of the recesses of the package body as defining “first and second recess walls.” Applicant notes that on page 5 of the subject Office Action, the Examiner correlates the first and second recess walls of Claim 17 to the reference numbers 13 and 14 depicted in Figures 1(a) and 1(b) of the Takemura et al. reference. However, as indicated above, such reference numerals 13 and 14 are used to identify the bent portions included in each of the supporting leads or tie bars 3, and have absolutely nothing to do with the resin encapsulant 6 or package body of the QFN package described in the Takemura et al. reference.

Thus, based on the foregoing, Applicant respectfully submits that independent Claim 16 of the present application is also not anticipated by the Takemura et al. reference, and is in condition for allowance. Additionally, Applicant respectfully submits that Claims 17-24 are also in condition for allowance as being dependent upon an allowable base claim.

Conclusion

On the basis of the foregoing, Applicant respectfully submits that the stated grounds of rejection have been overcome, and that Claims 1-25 are now in condition for allowance. An early Notice of Allowance is therefore respectfully requested.

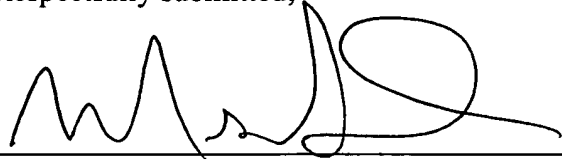
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Respectfully submitted,

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